

# Aisha Mohamed

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## EDUCATION

**M.S. in Computer Science**  
**University of Wisconsin–Madison**

**Expected: 05/2024**

GPA: 3.75/4.0

**B.S. in Computer Science**  
**Carnegie Mellon University**

**Graduated: 05/2018**

GPA: 3.82/4.0

Andrew Carnegie Scholar, College honors, and University honors

## WORK EXPERIENCE

**Amazon Inc. Prime Video | Seattle, WA | Applied Scientist Intern** | 06/2022 - 09/2022

- Built refined dataset of playback sessions with context features from raw dumps using AWS tools.
- Designed, and implemented a Random Forest regressor to predict network performance.
- Performed data analysis and visualization and Identified critical features for optimizing the quality and reliability of video playback.

**UW Madison CS Department | Madison, WI | Research Assistant** | 05/2023 - 12/2023

- Defined syntax and operational semantics of a stateful functional call-by-need language.
- Designed a secure IFC type system that protects against leaks through effectful lazy evaluation.

**Qatar Computing Research Institute | Doha, Qatar | Research Assistant** | 07/2018 - 12/2020

- Designed and implemented [RDFframes](#): an open source python framework for efficient and scalable processing of knowledge graphs. It is integrated in the Python PyData software stack. RDFframes processes and exports datasets 2x faster than the state-of-the-art alternative. Published in [VLDBJ 2022](#), Demo Published in [VLDB 2020](#).
- Proposed and tested, stratified hits@k, a popularity-agnostic evaluation metric for knowledge graph embeddings. Investigated popularity bias in state-of-the-art embeddings. Published in [UAI 2020](#).

**Robotics Institute at CMU | Pittsburgh, PA | Research Intern** | 06/2017 - 08/2017

- One of 30 out of 800 undergraduate applicants admitted to the RISS program.
- Used GMM, and MeanShift to improve localization of a robot in autonomous assembly applications.

## PROJECTS

**Clustering on MapReduce and MPI | Java and C**

Implemented parallel K-means using MPI and HadoopMapReduce, then compared their performance. - Conducted a scalability study on the MapReduce implementation analyzing the impact of the number of map slots, HDFS block size and the number of machines on performance.

**Video Content Distribution Networks (CDN) | C**

Augmented an HTTP proxy by adaptive bitrate selection using throughput estimation to stream the highest quality encoding possible. Implemented DNS load balancing using round-robin and geographic distance to spread the load of serving videos among multiple servers.

**BitTorrent | C**

Developed a Peer2Peer BitTorrent-like file transfer application that enables simultaneous upload and download of chunks of files. Implemented Slow Start, Congestion Avoidance, Fast Re-transmit and Fast Recovery mechanisms on top of UDP to ensure fair, reliable, and efficient network utilization.

### **Distributed File System and Access Kit | Java**

Built a Distributed Remote File Storage System. Used RMI-invocation for communication between entities. Implemented coarse-grained locks to synchronize access to the file and avoid deadlocks. Improved access time by intelligent replication of files.

### **Music Transcription App | Python, Flask, MySQL, Docker and CI/CD**

Worked in an Agile and Scrum Team to build a mobile app that records hums of tunes, performs signal processing to convert it into a sequence of notes in MIDI representation. The app stores recordings and sequences of notes in a MySQL database, offers audio playback, and displays notes in MIDI format.

### **Machine Learning models study | Python**

Implemented a basic ML library including Logistic Regression, KNN, SVM, Kernel SVM, and multiple Neural Networks. Compared models' performance on real datasets and artificially generated ones.

### **End to end speech recognizer using attentional network | PyTorch**

Implemented a speech recognition system based on "[Listen, Attend and Spell \(LAS\)](#)" model. Achieved a word error rate (WER) of 12% on WSJ dataset.

## **COURSES**

- [Open Source Models with Hugging Face](#) from DeepLearning.AI platform
- [ChatGPT Prompt Engineering for Developers](#) from DeepLearning.AI platform
- [Building Systems with the ChatGPT API](#) from DeepLearning.AI platform

## **SKILLS**

C | C++ | Python | MatLab | Java | ML | Javascript | React | PyTorch | TensorFlow  
| Linux | Docker | Github | Kubernetes | GitLab | GitFlow  
| MySQL | SQL | SPARQL | RDF | MySQLWorkbench

## **TECHNICAL STRENGTHS**

Machine Learning | LLMs | Computer Networks | Algorithms and Data Structures | Agile and Scrum

## **AWARDS**

- **Best Scientific Content award** - NewInML, NeurIPS 2019. Recognizes best paper in NewInML forum (acceptance rate is 15%)
- **Andrew Carnegie Scholar** - 2018 recognizes 40 out of 1,500 graduating CMU seniors based on academic excellence, and leadership
- **Google's Women Techmakers (formerly Anita Borg) Scholarship** - 2017 awarded to 20 students in Europe, Middle East and Africa
- **GHC16 scholarship** - 2016 to attend Grace Hopper Conference
- **Dean's List for 6 semesters** at CMU

## **COMMUNITY**

- Teaching Assistant for Programming II (OOP in Java) and Programming III (Linux tools & advanced data structures and algorithms) courses
- Mentor for undergraduate students
- Officer in Student chapter of the Association for Computing Machinery at the UW-Madison
- Volunteer in App Inventor Workshop at QCRI - 2018
- President of the Computing Club at CMU-Qatar - 2017
- Student Ambassador and Active leader for Arab Women in Computing – Qatar - 2017
- Member of Women in STEM club at CMU-Qatar -2017
- Volunteer in Mind-Craft and CS-4Qatar outreach workshops